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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,697	06/06/2005	Yoichiro Ito	NIH227.001NP	2179

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EXAMINER

FRITCHMAN, REBECCA M

ART UNIT	PAPER NUMBER
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1797

NOTIFICATION DATE	DELIVERY MODE
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05/27/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
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Office Action Summary	Application No. 10/509,697	Applicant(s) ITO, YOICHIRO	
	Examiner REBECCA FRITCHMAN	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 11, 12, 20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11, 12, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

***Detailed Action
Summary***

This is a Non-Final Office action based on the 10/509697 application election filed 04/30/2009.

Applicant's election without traverse of Group I, claims 1-8, 11, 12, 20, & 21 in the reply filed on 04/30/2009 is acknowledged.

Claims 1-8, 11, 12, 20, & 21 are pending and have been fully considered.

Claim Rejections - 35 USC § 103

1. Claims 1-8, 11, 12, 20, & 21 are rejected under 35 U.S.C. 103(a) as being obvious over NUNOGAKI in US 4968428 in view of ITO inn US 4414108.

With respect to Claims 1 & 20, NUNOGAKI teaches of a counter-current chromatography device using stacked flat rings (plurality of plates) driven in rotation. These rings comprise a plurality of cells connected together in a series of ducts engraved on said rings (column 8, lines 41-57 & Figure 12). NUNOGAKI do not teach of the plates having interleaved spiral flow channels formed therein wherein the flow channels include a first end and a second end wherein the second end of the first spiral flow channel is fluid communication with the first end of the second spiral flow channel. ITO, however, teaches of a flow-through continuous countercurrent chromatography system and more specifically of the plates having interleaved spiral flow channels formed therein wherein the flow channels include a first end and a second end wherein

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the second end of the first spiral flow channel is fluid communication with the first end of the second spiral flow channel (Abstract and Figure 7). It would have been obvious to one of ordinary skill in the art to combine the stacked chromatography plates of NUNOGAKI with the interleaved spiral flow channels within the plates of ITO due to the previous problems in the art with coil planet centrifuges (column 1, lines 18-55).

With respect to Claim 2, NUNOGAKI teaches of the plates having a plurality of septa which allow for fluid communication/flow between pairs of plates (column 8, lines 41-68 & column 9, lines 1-11).

With respect to Claim 3, NUNOGAKI teaches of the cassette (with plates) being mounted on a rotor (gear) (abstract).

With respect to Claims 4, 11, & 12 NUNOGAKI teach of plates for countercurrent chromatography comprising a first surface and a second opposed surface (disc plate and sealing plate) (column 8, lines 41-57 & Figure 12). NUNOGAKI does not teach of the plates having interleaved spiral flow channels formed therein wherein the flow channels include a first end and a second end wherein the second end of the first spiral flow channel is fluid communication with the first end of the second spiral flow channel. ITO, however, teaches of a flow-through continuous countercurrent chromatography system and more specifically of the plates having a plurality (at least 2) of interleaved spiral flow channels formed therein wherein the flow channels include a first end and a second end wherein the second end of the first spiral flow channel is fluid communication with the first end of the second spiral flow channel (Abstract and Figure 7). ITO also teaches of a first surface and a second opposed surface. It would have

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been obvious to one of ordinary skill in the art to combine the stacked chromatography plates of NUNOGAKI with the interleaved spiral flow channels within the plates of ITO due to the previous problems in the art with coil planet centrifuges (column 1, lines 18-55).

With respect to Claim 5, ITO teaches of flow channels being formed in the first plate (Abstract and figure 7).

With respect to Claim 6, NUNOGAKI et al. teach of the flow path including grooves into a second plate (inlets and outlets in the uppermost disc plate and the lowermost disc plate (column 8, lines 41-57).

With respect to Claim 7, ITO teaches of the groove being substantially linear (Figure 7).

With respect to Claim 8, ITO teaches of the spiral slow channels having a substantially rectangular cross section (column 5, lines 61-68 & column 6, lines 1-3).

With respect to Claim 9, ITO teaches of a flow-through continuous countercurrent chromatography system and more specifically of the plates having a plurality (at least 2) of interleaved spiral flow channels formed therein (Abstract and Figure 7). It would have been obvious to one of ordinary skill in the art to optimize the number of included flow channel.

With respect to Claim 10, ITO teaches of spiral flow channels being on one surface and grooves being on a second surface (Claim 10). ITO also teaches of the grooves and channels being radial (Figure 7). It would be obvious to one of ordinary

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skill in the art to optimize the number of included grooves with respect to the number of included flow channels.

With respect to Claim 21, ITO et al. teach of a groove being on first and second sides of one plate (Claim 10).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to REBECCA FRITCHMAN whose telephone number is (571)270-5542. The examiner can normally be reached on Monday- Friday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim, Vickie can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

R.F.

/Krishnan S Menon/

Primary Examiner, Art Unit 1797